#5

SEQUENCE LISTING

<110> Luche, Ralf M.
Wei, Bo

<120> DSP-14 DUAL-SPECIFICITY PHOSPHATASE

<130> 200125.422

<140> US 09/847,519
<141> 2001-05-01

<160> 17

<170> PatentIn Ver. 2.1

Al
Cm't

<210> 1
<211> 1165
<212> DNA
<213> Homo sapiens

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tgacatctgg agaagtgaag acaagcctca agaatgccta ctcatctgcc aagaggctgt 180
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agctctacat tggcgatgag gcgacggcgc tggaccgcta taggctgcag aaggcggggt 360
tcacgcacgt gctgaacgcg gcccacggcc gctggaacgt ggacactggg cccgactact 420
accgcgacat ggacatccag taccacggcg tggaggccga cgacctgccc accttcgacc 480
tcagtgtctt cttctacccg gcggcagcct tcatcgacag agcgctaagc gacgaccaca 540
gtaagatcct ggttcactgc gtcatgggcc gcagccggtc agccaccctg gtcctggcct 600
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gctgcgtcct cccgaaccgg ggctttttga agcagctccg ggagctggac aagcagctgg 720
tgcagcagag gcgacggtcc cagcgccagg acggtgagga ggaggatggc agggagctgt 780
aggcccgact cacagggcca gcagaggcac ttggggacag aggggagagg cagaacatag 840
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cttgttcaac ttccccatgt gtgctgggga cagggaggac ccagagctgc ccccgggcag 960
agctgagcgc tcagcctctc agcaaaatgg gagggacggg ctccccggct ctgggtcaca 1020
gaggagcatg ccacgctgca ccaagtctcc tgctttggtt ttgttttttt ggtgagaagg 1080
aagagggaaa aagattttta aaatgtgtag gcagtatgtt gtgattaaac gtttggcttt 1140
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<210> 2
<211> 220
<212> PRT
<213> Homo sapiens

<400> 2

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Met Thr Ser Gly Glu Val Lys Thr Ser Leu Lys Asn Ala Tyr Ser Ser
  1               5                  10                  15

Ala Lys Arg Leu Ser Pro Lys Met Glu Glu Glu Gly Glu Glu Glu Asp
             20                  25                  30

Tyr Cys Thr Pro Gly Ala Phe Glu Leu Glu Arg Leu Phe Trp Lys Gly
         35                  40                  45

Ser Pro Gln Tyr Thr His Val Asn Glu Val Trp Pro Lys Leu Tyr Ile
     50                  55                  60

Gly Asp Glu Ala Thr Ala Leu Asp Arg Tyr Arg Leu Gln Lys Ala Gly
 65                  70                  75                  80

Phe Thr His Val Leu Asn Ala Ala His Gly Arg Trp Asn Val Asp Thr
                 85                  90                  95

Gly Pro Asp Tyr Tyr Arg Asp Met Asp Ile Gln Tyr His Gly Val Glu
            100                 105                 110

Ala Asp Asp Leu Pro Thr Phe Asp Leu Ser Val Phe Phe Tyr Pro Ala
        115                 120                 125

Ala Ala Phe Ile Asp Arg Ala Leu Ser Asp Asp His Ser Lys Ile Leu
    130                 135                 140

Val His Cys Val Met Gly Arg Ser Arg Ser Ala Thr Leu Val Leu Ala
145                 150                 155                 160

Tyr Leu Met Ile His Lys Asp Met Thr Leu Val Asp Ala Ile Gln Gln
                165                 170                 175

Val Ala Lys Asn Arg Cys Val Leu Pro Asn Arg Gly Phe Leu Lys Gln
            180                 185                 190

Leu Arg Glu Leu Asp Lys Gln Leu Val Gln Gln Arg Arg Arg Ser Gln
        195                 200                 205

Arg Gln Asp Gly Glu Glu Glu Asp Gly Arg Glu Leu
    210                 215                 220
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A1 Cont

<210> 3
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> DSP-14 active site

<400> 3
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Val His Cys Val Met Gly Arg Ser Arg Ser Ala Thr Leu Val Leu Ala
  1               5                  10                  15
```

Tyr Leu Met

<210> 4
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Conserved homology region derived from eight human DSPs which contains the PTP active site signature motif.

<400> 4
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Thr Asn Ile Leu Ala Tyr Leu Met
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A1 cont

<210> 5
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 5
tggcgtccac cagggtcatg tccttgtg 28

<210> 6
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 6
cacaaggaca tgaccctggt ggacgcca 28

<210> 7
<211> 22
<212> DNA
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 7
gccccagccg gtcagccacc ct 22

<210> 8
<211> 170
<212> PRT
<213> Homo sapiens

<400> 8
Ser Asp Leu Asp Arg Asp Pro Asn Ser Ala Thr Asp Ser Asp Gly Ser
1 5 10 15

Pro Leu Ser Asn Ser Gln Pro Ser Phe Pro Val Glu Ile Leu Pro Phe
20 25 30

Leu Tyr Leu Gly Cys Ala Lys Asp Ser Thr Asn Leu Asp Val Leu Glu
35 40 45

Glu Phe Gly Ile Lys Tyr Ile Leu Asn Val Thr Pro Asn Leu Pro Asn
50 55 60

Leu Phe Glu Asn Ala Gly Glu Phe Lys Tyr Lys Gln Ile Pro Ile Ser
65 70 75 80

Asp His Trp Ser Gln Asn Leu Ser Gln Phe Phe Pro Glu Ala Ile Ser
85 90 95

Phe Ile Asp Glu Ala Arg Gly Lys Asn Cys Gly Val Leu Val His Cys
100 105 110

Leu Ala Gly Ile Ser Arg Ser Val Thr Val Thr Val Ala Tyr Leu Met
115 120 125

Gln Lys Leu Asn Leu Ser Met Asn Asp Ala Tyr Asp Ile Val Lys Met
130 135 140

Lys Lys Ser Asn Ile Ser Pro Asn Phe Asn Phe Met Gly Gln Leu Leu
145 150 155 160

Asp Phe Glu Arg Thr Leu Gly Leu Ser Ser
165 170

<210> 9
<211> 168
<212> PRT
<213> Homo sapiens

<400> 9
Asp Arg Glu Leu Pro Ser Ser Ala Thr Glu Ser Asp Gly Ser Pro Val

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  1               5                  10                  15

Pro Ser Ser Gln Pro Ala Phe Pro Val Gln Ile Leu Pro Tyr Leu Tyr
            20                  25                  30

Leu Gly Cys Ala Lys Asp Ser Thr Asn Leu Asp Val Leu Gly Lys Tyr
         35                  40                  45

Gly Ile Lys Tyr Ile Leu Asn Val Thr Pro Asn Leu Pro Asn Ala Phe
     50                  55                  60

Glu His Gly Gly Glu Phe Thr Tyr Lys Gln Ile Pro Ile Ser Asp His
 65                  70                  75                  80

Trp Ser Gln Asn Leu Ser Gln Phe Phe Pro Glu Ala Ile Ser Phe Ile
                85                  90                  95

Asp Glu Ala Arg Ser Lys Lys Cys Gly Val Leu Val His Cys Leu Ala
            100                 105                 110

Gly Ile Ser Arg Ser Val Thr Val Thr Val Ala Tyr Leu Met Gln Lys
        115                 120                 125

Met Asn Leu Ser Leu Asn Asp Ala Tyr Asp Phe Val Lys Arg Lys Lys
    130                 135                 140

Ser Asn Ile Ser Pro Asn Phe Asn Phe Met Gly Gln Leu Leu Asp Phe
145                 150                 155                 160

Glu Arg Thr Leu Gly Leu Ser Ser
                165
```

A1 Cont

<210> 10
<211> 157
<212> PRT
<213> Homo sapiens

<400> 10

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Gly Ala Thr Pro Pro Pro Val Gly Leu Arg Ala Ser Phe Pro Val Gln
  1               5                  10                  15

Ile Leu Pro Asn Leu Tyr Leu Gly Ser Ala Arg Asp Ser Ala Asn Leu
            20                  25                  30

Glu Ser Leu Ala Lys Leu Gly Ile Arg Tyr Ile Leu Asn Val Thr Pro
         35                  40                  45

Asn Leu Pro Asn Phe Phe Glu Lys Asn Gly Asp Phe His Tyr Lys Gln
     50                  55                  60

Ile Pro Ile Ser Asp His Trp Ser Gln Asn Leu Ser Arg Phe Phe Pro
 65                  70                  75                  80
```

```
Glu Ala Ile Glu Phe Ile Asp Glu Ala Leu Ser Gln Asn Cys Gly Val
                 85                  90                  95

Leu Val His Cys Leu Ala Gly Val Ser Arg Ser Val Thr Val Thr Val
            100                 105                 110

Ala Tyr Leu Met Gln Lys Leu His Leu Ser Leu Asn Asp Ala Tyr Asp
        115                 120                 125

Leu Val Lys Arg Lys Lys Ser Asn Ile Ser Pro Asn Phe Asn Phe Met
    130                 135                 140

Gly Gln Leu Leu Asp Phe Glu Arg Ser Leu Arg Leu Glu
145                 150                 155
```

<210> 11
<211> 170
<212> PRT
<213> Homo sapiens

A1 Cont

<400> 11

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Gly Leu Cys Glu Gly Lys Pro Ala Ala Leu Leu Pro Met Ser Leu Ser
  1               5                  10                  15

Gln Pro Cys Leu Pro Val Pro Ser Val Gly Leu Thr Arg Ile Leu Pro
            20                  25                  30

His Leu Tyr Leu Gly Ser Gln Lys Asp Val Leu Asn Lys Asp Leu Met
        35                  40                  45

Thr Gln Asn Gly Ile Ser Tyr Val Leu Asn Ala Ser Asn Ser Cys Pro
    50                  55                  60

Lys Pro Asp Phe Ile Cys Glu Ser Arg Phe Met Arg Val Pro Ile Asn
65                  70                  75                  80

Asp Asn Tyr Cys Glu Lys Leu Leu Pro Trp Leu Asp Lys Ser Ile Glu
                85                  90                  95

Phe Ile Asp Lys Ala Lys Leu Ser Ser Cys Gln Val Ile Val His Cys
            100                 105                 110

Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile Ala Tyr Ile Met
        115                 120                 125

Lys Thr Met Gly Met Ser Ser Asp Asp Ala Tyr Arg Phe Val Lys Asp
    130                 135                 140

Arg Arg Pro Ser Ile Ser Pro Asn Phe Asn Phe Leu Gly Gln Leu Leu
145                 150                 155                 160

Glu Tyr Glu Arg Thr Leu Lys Leu Leu Ala
                165                 170
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<210> 12
<211> 168
<212> PRT
<213> Homo sapiens

<400> 12
Pro Ala Gln Ala Leu Pro Pro Ala Gly Ala Glu Asn Ser Asn Ser Asp
1 5 10 15

Pro Arg Val Pro Ile Tyr Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
20 25 30

Tyr Leu Tyr Leu Gly Ser Cys Asn His Ser Ser Asp Leu Gln Gly Leu
35 40 45

Gln Ala Cys Gly Ile Thr Ala Val Leu Asn Val Ser Ala Ser Cys Pro
50 55 60

Asn His Phe Glu Gly Leu Phe His Tyr Lys Ser Ile Pro Val Glu Asp
65 70 75 80

Asn Gln Met Val Glu Ile Ser Ala Trp Phe Gln Glu Ala Ile Ser Phe
85 90 95

Ile Asp Ser Val Lys Asn Ser Gly Gly Arg Val Leu Val His Cys Gln
100 105 110

Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu Ile Gln
115 120 125

Ser His Arg Val Arg Leu Asp Glu Ala Phe Asp Phe Val Lys Gln Arg
130 135 140

Arg Gly Val Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu Leu Gln
145 150 155 160

Leu Glu Thr Gln Val Leu Cys His
165

<210> 13
<211> 169
<212> PRT
<213> Homo sapiens

<400> 13
Pro Leu Ser Thr Ser Val Pro Asp Ser Ala Glu Ser Gly Cys Ser Ser
1 5 10 15

Cys Ser Thr Pro Leu Tyr Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
20 25 30

```
Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Arg Lys Asp Met Leu
         35                  40                  45

Asp Ala Leu Gly Ile Thr Ala Leu Ile Asn Val Ser Ala Asn Cys Pro
     50                  55                  60

Asn His Phe Glu Gly His Tyr Gln Tyr Lys Ser Ile Pro Val Glu Asp
 65                  70                  75                  80

Asn His Lys Ala Asp Ile Ser Ser Trp Phe Asn Glu Ala Ile Asp Phe
                 85                  90                  95

Ile Asp Ser Ile Lys Asn Ala Gly Gly Arg Val Phe Val His Cys Gln
            100                 105                 110

Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu Met Arg
        115                 120                 125

Thr Asn Arg Val Lys Leu Asp Glu Ala Phe Glu Phe Val Lys Gln Arg
    130                 135                 140

Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu Leu Gln
145                 150                 155                 160

Phe Glu Ser Gln Val Leu Ala Pro His
                165
```

Al Cont

<210> 14
<211> 169
<212> PRT
<213> Homo sapiens

<400> 14

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Pro Val Pro Pro Ser Ala Thr Glu Pro Leu Asp Leu Gly Cys Ser Ser
  1               5                  10                  15

Cys Gly Thr Pro Leu His Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
            20                  25                  30

Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ala Arg Arg Asp Met Leu
         35                  40                  45

Asp Ala Leu Gly Ile Thr Ala Leu Leu Asn Val Ser Ser Asp Cys Pro
     50                  55                  60

Asn His Phe Glu Gly His Tyr Gln Tyr Lys Cys Ile Pro Val Glu Asp
 65                  70                  75                  80

Asn His Lys Ala Asp Ile Ser Ser Trp Phe Met Glu Ala Ile Glu Tyr
                 85                  90                  95

Ile Asp Ala Val Lys Asp Cys Arg Gly Arg Val Leu Val His Cys Gln
            100                 105                 110
```

```
Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu Met Met
        115                 120                 125

Lys Lys Arg Val Arg Leu Glu Glu Ala Phe Glu Phe Val Lys Gln Arg
    130                 135                 140

Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu Leu Gln
145                 150                 155                 160

Phe Glu Ser Gln Val Leu Ala Thr Ser
                165
```

<210> 15
<211> 171
<212> PRT
<213> Homo sapiens

A1
Cmt

<400> 15

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Ser Glu Arg Ala Leu Ile Ser Gln Cys Gly Lys Pro Val Val Asn Val
  1               5                  10                  15

Ser Tyr Arg Pro Ala Tyr Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
             20                  25                  30

Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Lys Cys Glu Phe Leu
         35                  40                  45

Ala Asn Leu His Ile Thr Ala Leu Leu Asn Val Ser Arg Arg Thr Ser
     50                  55                  60

Glu Ala Cys Met Thr His Leu His Tyr Lys Trp Ile Pro Val Glu Asp
 65                  70                  75                  80

Ser His Thr Ala Asp Ile Ser Ser His Phe Gln Glu Ala Ile Asp Phe
                 85                  90                  95

Ile Asp Cys Val Arg Glu Lys Gly Gly Lys Val Leu Val His Cys Glu
            100                 105                 110

Ala Gly Ile Ser Arg Ser Pro Thr Ile Cys Met Ala Tyr Leu Met Lys
        115                 120                 125

Thr Lys Gln Phe Arg Leu Lys Glu Ala Phe Asp Tyr Ile Lys Gln Arg
    130                 135                 140

Arg Ser Met Val Ser Pro Asn Phe Gly Phe Met Gly Gln Leu Leu Gln
145                 150                 155                 160

Tyr Glu Ser Glu Ile Leu Pro Ser Thr Pro Asn
                165                 170
```

<210> 16
<211> 180
<212> PRT
<213> Homo sapiens

<400> 16
Ser Gly Ser Phe Glu Leu Ser Val Gln Asp Leu Asn Asp Leu Leu Ser
1 5 10 15

Asp Gly Ser Gly Cys Tyr Ser Leu Pro Ser Gln Pro Cys Asn Glu Val
20 25 30

Thr Pro Arg Ile Tyr Val Gly Asn Ala Ser Val Ala Gln Asp Ile Pro
35 40 45

Lys Leu Gln Lys Leu Gly Ile Thr His Val Leu Asn Ala Ala Glu Gly
50 55 60

A1 Con't

Arg Ser Phe Met His Val Asn Thr Asn Ala Asn Phe Tyr Lys Asp Ser
65 70 75 80

Gly Ile Thr Tyr Leu Gly Ile Lys Ala Asn Asp Thr Gln Glu Phe Asn
85 90 95

Leu Ser Ala Tyr Phe Glu Arg Ala Ala Asp Phe Ile Asp Gln Ala Leu
100 105 110

Ala Gln Lys Asn Gly Arg Val Leu Val His Cys Arg Glu Gly Tyr Ser
115 120 125

Arg Ser Pro Thr Leu Val Ile Ala Tyr Leu Met Met Arg Gln Lys Met
130 135 140

Asp Val Lys Ser Ala Leu Ser Ile Val Arg Gln Asn Arg Glu Ile Gly
145 150 155 160

Pro Asn Asp Gly Phe Leu Ala Gln Leu Cys Gln Leu Asn Asp Arg Leu
165 170 175

Ala Lys Glu Gly
180

<210> 17
<211> 180
<212> PRT
<213> Homo sapiens

<400> 17
Glu Gly Glu Glu Glu Asp Tyr Cys Thr Pro Gly Ala Phe Glu Leu Glu
1 5 10 15
Arg Leu Phe Trp Lys Gly Ser Pro Gln Tyr Thr His Val Asn Glu Val
20 25 30
Trp Pro Lys Leu Tyr Ile Gly Asp Glu Ala Thr Ala Leu Asp Arg Tyr

```
        35                  40                  45
Arg Leu Gln Lys Ala Gly Phe Thr His Val Leu Asn Ala Ala His Gly
    50                  55                  60
Arg Trp Asn Val Asp Thr Gly Pro Asp Tyr Tyr Arg Asp Met Asp Ile
65                  70                  75                  80
Gln Tyr His Gly Val Glu Ala Asp Asp Leu Pro Thr Phe Asp Leu Ser
                85                  90                  95
Val Phe Phe Tyr Pro Ala Ala Ala Phe Ile Asp Arg Ala Leu Ser Asp
            100                 105                 110
Asp His Ser Lys Ile Leu Val His Cys Val Met Gly Arg Ser Arg Ser
        115                 120                 125
Ala Thr Leu Val Leu Ala Tyr Leu Met Ile His Lys Asp Met Thr Leu
    130                 135                 140
Val Asp Ala Ile Gln Gln Val Ala Lys Asn Arg Cys Val Leu Pro Asn
145                 150                 155                 160
Arg Gly Phe Leu Lys Gln Leu Arg Glu Leu Asp Lys Gln Leu Val Gln
                165                 170                 175
Gln Arg Arg Arg
            180
```